



Sun StorageTek™ 8 Gb FC PCI-Express HBA, Emulex Installation Guide

For HBA Models SG-XPCIE1FC-EM8-Z and
SG-XPCIE2FC-EM8-Z

Sun Microsystems, Inc.
www.sun.com

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Declaration of Conformity

Compliance Model Number: **P001219**
Product Family Name: **Sun StorageTek™ Enterprise 8Gb FC PCI-Express Single and Dual Port Host Bus Adapter (SG-XPCIE1FC-EM8-Z, SG-XPCIE2FC-EM8-Z)**

EMC

USA—FCC Class A

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This equipment may not cause harmful interference.
2. This equipment must accept any interference that may cause undesired operation.

Canada

This Class A digital apparatus complies with Canadian ICES-003.

European Union

This equipment complies with the following requirements of the EMC Directive 2004/108/EC:

As Information Technology Equipment (ITE) Class A per (as applicable):

EN 55022:2006	Class A
EN 61000-3-2:2000 +A2:2005	Pass
EN 61000-3-3:1995 +A1:2001	Pass
EN 55024:1998 +A1:2001 +A2:2003	Required Limits:
IEC61000-4-2	4 kV (Direct), 8 kV (Air)
IEC61000-4-3	3 V/m
IEC61000-4-4	1 kV AC Power Lines, 0.5 kV Signal and DC Power Lines
IEC61000-4-5	1 kV AC Line-Line and Outdoor Signal Lines, 2 kV AC Line-Gnd, 0.5 kV DC Power Lines
IEC61000-4-6	3 V
IEC61000-4-8	1 A/m
IEC61000-4-11	Pass

Safety

This equipment complies with the following requirements of the Low Voltage Directive 2006/95/EC:

EC Type Examination Certificates:

EN 60950-1:2001, 1st Edition

IEC 60950-1:2001, 1st Edition

Evaluated to all CB Countries

UL 60950-1:2003, CSA C22.2 No. 60950-03

File: E157779-A10-UL-1

Supplementary Information

This product was tested and complies with all the requirements for the CE Mark. This equipment complies with the Restriction of Hazardous Substances (RoHS) directive 2002/95/EC.

/S/
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Regulatory Compliance Statements

Your Sun product is marked to indicate its compliance class:

- Federal Communications Commission (FCC) — USA
- Industry Canada Equipment Standard for Digital Equipment (ICES-003) — Canada
- Voluntary Control Council for Interference (VCCI) — Japan
- Bureau of Standards Metrology and Inspection (BSMI) — Taiwan

Please read the appropriate section that corresponds to the marking on your Sun product before attempting to install the product.

FCC Class A Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Modifications: Any modifications made to this device that are not approved by Sun Microsystems, Inc. may void the authority granted to the user by the FCC to operate this equipment.

ICES-003 Class A Notice - Avis NMB-003, Classe A

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

VCCI 基準について

クラス A VCCI 基準について

クラス A VCCI の表示があるワークステーションおよびオプション製品は、クラス A 情報技術装置です。これらの製品には、下記の項目が該当します。

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BSMI Class A Notice

The following statement is applicable to products shipped to Taiwan and marked as Class A on the product compliance label.

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

CCC Class A Notice

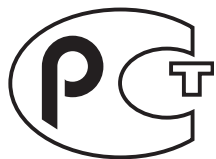
The following statement is applicable to products shipped to China and marked with "Class A" on the product's compliance label.

以下声明适用于运往中国且其认证标志上注有 "Class A" 字样的产品。

声明
此为A级产品，在生活环境中，该产品可能会造成无线电干扰。
在这种情况下，可能需要用户对其干扰采取切实可行的措施。



GOST-R Certification Mark



Safety Agency Compliance Statements

Read this section before beginning any procedure. The following text provides safety precautions to follow when installing a Sun Microsystems product.

Safety Precautions

For your protection, observe the following safety precautions when setting up your equipment:

- Follow all cautions and instructions marked on the equipment.
- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the equipment's electrical rating label.
- Never push objects of any kind through openings in the equipment. Dangerous voltages may be present. Conductive foreign objects could produce a short circuit that could cause fire, electric shock, or damage to your equipment.

Symbols

The following symbols may appear in this book:



Caution – There is a risk of personal injury and equipment damage. Follow the instructions.



Caution – Hot surface. Avoid contact. Surfaces are hot and may cause personal injury if touched.



Caution – Hazardous voltages are present. To reduce the risk of electric shock and danger to personal health, follow the instructions.

Depending on the type of power switch your device has, one of the following symbols may be used:



On – Applies AC power to the system.



Off – Removes AC power from the system.



Standby – The On/Standby switch is in the standby position.

Modifications to Equipment

Do not make mechanical or electrical modifications to the equipment. Sun Microsystems is not responsible for regulatory compliance of a modified Sun product.

Placement of a Sun Product



Caution – Do not block or cover the openings of your Sun product. Never place a Sun product near a radiator or heat register. Failure to follow these guidelines can cause overheating and affect the reliability of your Sun product.

- **Product:** Sun StorageTek 8 Gb FC PCI-Express HBA, Emulex

In compliance with the requirements defined in ISO 7779, the workplace-dependent noise level of this product is less than 70 db (A).

In compliance with the requirements defined in ISO 7779, the workplace-dependent noise level of this product is XX db(A).

SELV Compliance

Safety status of I/O connections comply to SELV requirements.

Power Cord Connection



Caution – Sun products are designed to work with power systems having a grounded neutral (grounded return for DC-powered

products). To reduce the risk of electric shock, do not plug Sun products into any other type of power system. Contact your facilities manager or a qualified electrician if you are not sure what type of power is supplied to your building.



Caution – Not all power cords have the same current ratings. Do not use the power cord provided with your equipment for any other products or use. Household extension cords do not have overload protection and are not meant for use with computer systems. Do not use household extension cords with your Sun product.



注意 - 添付の電源コードを他の装置や用途に使用しない
添付の電源コードは本装置に接続し、使用することを目的として設計され、その安全性が確認されているものです。決して他の装置や用途に使用しないでください。火災や感電の原因となる恐れがあります。

The following caution applies only to devices with a Standby power switch:



Caution – The power switch of this product functions as a standby type device only. The power cord serves as the primary disconnect device for the system. Be sure to plug the power cord into a grounded power outlet that is nearby the system and is readily accessible. Do not connect the power cord when the power supply has been removed from the system chassis.

The following caution applies only to devices with multiple power cords:



Caution – For products with multiple power cords, all power cords must be disconnected to completely remove power from the system.

Battery Warning



Caution – There is danger of explosion if batteries are mishandled or incorrectly replaced. On systems with replaceable batteries, replace only with the same manufacturer and type or equivalent type recommended by the manufacturer per the instructions provided in the product service manual. Do not disassemble batteries or attempt to recharge them outside the system. Do not dispose of batteries in fire. Dispose of batteries properly in accordance with the manufacturer's instructions and local regulations. Note that on Sun CPU boards, there is a lithium battery molded into the real-time clock. These batteries are not customer replaceable parts.

System Unit Cover

You must remove the cover of your Sun computer system unit to add cards, memory, or internal storage devices. Be sure to replace the cover before powering on your computer system.



Caution – Do not operate Sun products without the cover in place. Failure to take this precaution may result in personal injury and system damage.

Rack System Warning

The following warnings apply to Racks and Rack Mounted systems.



Caution – For safety, equipment should always be loaded from the bottom up. That is, install the equipment that will be mounted in the lowest part of the rack first, then the next higher systems, etc.



Caution – To prevent the rack from tipping during equipment installation, the anti-tilt bar on the rack must be deployed.



Caution – To prevent extreme operating temperature within the rack insure that the maximum temperature does not exceed the product's ambient rated temperatures.



Caution – To prevent extreme operating temperatures due to reduced airflow consideration should be made to the amount of air flow that is required for a safe operation of the equipment.

Laser Compliance Notice

Sun products that use laser technology comply with Class 1 laser requirements.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD and DVD Devices

The following caution applies to CD, DVD, and other optical devices.



Caution – Use of controls, adjustments, or the performance of procedures other than those specified herein may result in hazardous radiation exposure.

Conformité aux normes de sécurité

Veillez lire attentivement cette section avant de commencer. Ce texte traite des mesures de sécurité qu'il convient de prendre pour l'installation d'un produit Sun Microsystems.

Mesures de sécurité

Pour votre sécurité, nous vous recommandons de suivre scrupuleusement les mesures de sécurité ci-dessous lorsque vous installez votre matériel:

- Suivez tous les avertissements et toutes les instructions inscrites sur le matériel.
- Assurez-vous que la tension et la fréquence de votre source d'alimentation correspondent à la tension et à la fréquence indiquées sur l'étiquette de la tension électrique nominale du matériel
- N'introduisez jamais d'objets quels qu'ils soient dans les ouvertures de l'équipement. Vous pourriez vous trouver en présence de hautes tensions dangereuses. Tout objet étranger conducteur risque de produire un court-circuit pouvant présenter un risque d'incendie ou de décharge électrique, ou susceptible d'endommager le matériel.

Symboles

Vous trouverez ci-dessous la signification des différents symboles utilisés:



Attention – Vous risquez d'endommager le matériel ou de vous blesser. Veuillez suivre les instructions.



Attention – Surfaces brûlantes. Evitez tout contact. Les surfaces sont brûlantes. Vous risquez de vous blesser si vous les touchez.



Attention – Tensions dangereuses. Pour réduire les risques de décharge électrique et de danger physique, observez les consignes indiquées.

Selon le type d'interrupteur marche/arrêt dont votre appareil est équipé, l'un des symboles suivants sera utilisé:



Marche – Met le système sous tension alternative.



Arrêt – Met le système hors tension alternative.



Veilleuse – L'interrupteur Marche/Veille est sur la position de veille.

Modification du matériel

N'apportez aucune modification mécanique ou électrique au matériel. Sun Microsystems décline toute responsabilité quant à la non-conformité éventuelle d'un produit Sun modifié.

Positionnement d'un produit Sun



Attention – Evitez d'obstruer ou de recouvrir les orifices de votre produit Sun. N'installez jamais un produit Sun près d'un radiateur ou d'une source de chaleur. Si vous ne respectez pas ces consignes, votre produit Sun risque de surchauffer et son fonctionnement en sera altéré.

Niveau de pression acoustique

Produit : Sun StorageTek 8 Gb FC PCI-Express HBA, Emulex

Conformément à la norme ISO 7779, le niveau sonore de ce produit sur le lieu de travail est inférieur à 70 db(A).

Conformément à la norme ISO 7779, le niveau sonore de ce produit sur le lieu de travail est de XX db(A).

Conformité SELV

Le niveau de sécurité des connexions E/S est conforme aux normes SELV.

Connexion du cordon d'alimentation



Attention – Les produits Sun sont conçus pour fonctionner avec des systèmes d'alimentation équipés d'un conducteur neutre relié à la terre (conducteur neutre pour produits alimentés en CC). Pour réduire les risques de décharge électrique, ne branchez jamais les produits Sun sur une source d'alimentation d'un autre type. Contactez le gérant de votre bâtiment ou un électricien agréé si vous avez le moindre doute quant au type d'alimentation fourni dans votre bâtiment.



Attention – Tous les cordons d'alimentation ne présentent pas les mêmes caractéristiques électriques. Les cordons d'alimentation à usage domestique ne sont pas protégés contre les surtensions et ne sont pas conçus pour être

utilisés avec des ordinateurs. N'utilisez jamais de cordon d'alimentation à usage domestique avec les produits Sun.

L'avertissement suivant s'applique uniquement aux systèmes équipés d'un interrupteur Veille:



Attention – L'interrupteur d'alimentation de ce produit fonctionne uniquement comme un dispositif de mise en veille. Le cordon d'alimentation constitue le moyen principal de déconnexion de l'alimentation pour le système. Assurez-vous de le brancher dans une prise d'alimentation mise à la terre près du système et facile d'accès. Ne le branchez pas lorsque l'alimentation électrique ne se trouve pas dans le châssis du système.

L'avertissement suivant s'applique uniquement aux systèmes équipés de plusieurs cordons d'alimentation:



Attention – Pour mettre un système équipé de plusieurs cordons d'alimentation hors tension, il est nécessaire de débrancher tous les cordons d'alimentation.

Mise en garde relative aux batteries



Attention – Les batteries risquent d'exploser en cas de manipulation maladroite ou de remplacement incorrect. Pour les systèmes dont les batteries sont remplaçables, effectuez les remplacements uniquement selon le modèle du fabricant ou un modèle équivalent recommandé par le fabricant, conformément aux instructions fournies dans le manuel de service du système. N'essayez en aucun cas de démonter les batteries, ni de les recharger hors du système. Ne les jetez pas au feu. Mettez-les au rebut selon les instructions du fabricant et conformément à la législation locale en vigueur. Notez que sur les cartes processeur de Sun, une batterie au lithium a été moulée dans l'horloge temps réel. Les batteries ne sont pas des pièces remplaçables par le client.

Couvercle de l'unité

Pour ajouter des cartes, de la mémoire ou des périphériques de stockage internes, vous devez retirer le couvercle de votre système Sun. Remettez le couvercle supérieur en place avant de mettre votre système sous tension.



Attention – Ne mettez jamais des produits Sun sous tension si leur couvercle supérieur n'est pas mis en place. Si vous ne prenez pas ces précautions, vous risquez de vous blesser ou d'endommager le système.

Mise en garde relative au système en rack

La mise en garde suivante s'applique aux racks et aux systèmes montés en rack.



Attention – Pour des raisons de sécurité, le matériel doit toujours être chargé du bas vers le haut. En d'autres termes, vous devez installer, en premier, le matériel qui doit se trouver dans la partie la plus inférieure du rack, puis installer le matériel sur le niveau suivant, etc.



Attention – Afin d'éviter que le rack ne penche pendant l'installation du matériel, tirez la barre anti-basculement du rack.



Attention – Pour éviter des températures de fonctionnement extrêmes dans le rack, assurez-vous que la température maximale ne dépasse pas la fourchette de températures ambiantes du produit déterminée par le fabricant.



Attention – Afin d'empêcher des températures de fonctionnement extrêmes provoquées par une aération insuffisante, assurez-vous de fournir une aération appropriée pour un fonctionnement du matériel en toute sécurité

Avis de conformité des appareils laser

Les produits Sun qui font appel aux technologies lasers sont conformes aux normes de la classe 1 en la matière.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

Périphériques CD et DVD

L'avertissement suivant s'applique aux périphériques CD, DVD et autres périphériques optiques:



Attention – L'utilisation de contrôles et de réglages ou l'application de procédures autres que ceux spécifiés dans le présent document peuvent entraîner une exposition à des radiations dangereuses.

Einhaltung sicherheitsbehördlicher Vorschriften

Lesen Sie vor dem Ausführen von Arbeiten diesen Abschnitt. Im folgenden Text werden Sicherheitsvorkehrungen beschrieben, die Sie bei der Installation eines Sun Microsystems-Produkts beachten müssen.

Sicherheitsvorkehrungen

Treffen Sie zu Ihrem eigenen Schutz bei der Installation des Geräts die folgenden Sicherheitsvorkehrungen:

- Beachten Sie alle auf den Geräten angebrachten Warnhinweise und Anweisungen.
- Stellen Sie sicher, dass Spannung und Frequenz der Stromversorgung den Nennleistungen auf dem am Gerät angebrachten Etikett entsprechen.
- Führen Sie niemals Fremdoobjekte in die Öffnungen am Gerät ein. Es können gefährliche Spannungen anliegen. Leitfähige Fremdoobjekte können einen Kurzschluss verursachen, der einen Brand, Stromschlag oder Geräteschaden herbeiführen kann.

Symbole

Die Symbole in diesem Handbuch haben folgende Bedeutung:



Achtung – Gefahr von Verletzung und Geräteschaden. Befolgen Sie die Anweisungen.



Achtung – Heiße Oberfläche. Nicht berühren, da Verletzungsgefahr durch heiße Oberfläche besteht.



Achtung – Gefährliche Spannungen. Befolgen Sie die Anweisungen, um Stromschläge und Verletzungen zu vermeiden.

Je nach Netzschaltertyp an Ihrem Gerät kann eines der folgenden Symbole verwendet werden:



Ein – Versorgt das System mit Wechselstrom.



Aus – Unterbricht die Wechselstromzufuhr zum Gerät.



Wartezustand – Der Ein-/Standby-Netzschalter befindet sich in der Standby-Position.

Modifikationen des Geräts

Nehmen Sie keine elektrischen oder mechanischen Gerätemodifikationen vor. Sun Microsystems ist für die Einhaltung der Sicherheitsvorschriften von modifizierten Sun-Produkten nicht haftbar.

Aufstellung von Sun-Geräten



Achtung – Geräteöffnungen Ihres Sun-Produkts dürfen nicht blockiert oder abgedeckt werden. Sun-Geräte sollten niemals in der Nähe von Heizkörpern oder Heißluftklappen aufgestellt werden. Die Nichtbeach-

tung dieser Richtlinien kann Überhitzung verursachen und die Zuverlässigkeit Ihres Sun-Geräts beeinträchtigen.

Lautstärke

Produkt: Sun StorageTek 8 Gb FC PCI-Express HBA, Emulex

Gemäß den Vorgaben in der Norm ISO 7779 beträgt der Geräuschpegel dieses Geräts in Abhängigkeit vom Arbeitsplatz unter 70 db(A).

Gemäß den Vorgaben in der Norm ISO 7779 beträgt der Geräuschpegel dieses Geräts in Abhängigkeit vom Arbeitsplatz XX db(A).

SELV-Konformität

Der Sicherheitsstatus der E/A-Verbindungen entspricht den SELV-Anforderungen.

Anschluss des Netzkabels



Achtung – Sun-Geräte sind für Stromversorgungssysteme mit einem geerdeten neutralen Leiter (geerdeter Rückleiter bei gleichstrombetriebenen Geräten) ausgelegt. Um die Gefahr von Stromschlägen zu vermeiden, schließen Sie das Gerät niemals an andere Stromversorgungssysteme an. Wenden Sie sich an den zuständigen Gebäudeverwalter oder an einen qualifizierten Elektriker, wenn Sie nicht sicher wissen, an welche Art von Stromversorgungssystem Ihr Gebäude angeschlossen ist.



Achtung – Nicht alle Netzkabel verfügen über die gleichen Nennwerte. Herkömmliche, im Haushalt verwendete Verlängerungskabel besitzen keinen Überlastschutz und sind daher für Computersysteme nicht geeignet. Verwenden Sie bei Ihrem Sun-Produkt keine Haushalts-Verlängerungskabel.

Die folgende Warnung gilt nur für Geräte mit Standby-Netzschalter:



Achtung – Beim Netzschalter dieses Geräts handelt es sich nur um einen Ein/Standby-Schalter. Zum völligen Abtrennen des Systems von der Stromversorgung dient hauptsächlich das Netzkabel. Stellen Sie sicher, dass das Netzkabel an eine frei zugängliche geerdete Steckdose in der Nähe des Systems angeschlossen ist. Schließen Sie das Stromkabel nicht an, wenn die Stromversorgung vom Systemchassis entfernt wurde.

Die folgende Warnung gilt nur für Geräte mit mehreren Netzkabeln:



Achtung – Bei Produkten mit mehreren Netzkabeln müssen alle Netzkabel abgetrennt werden, um das System völlig von der Stromversorgung zu trennen.

Warnung bezüglich Batterien



Achtung – Bei unsachgemäßer Handhabung oder nicht fachgerechtem Austausch der Batterien besteht Explosionsgefahr. Verwenden Sie bei Systemen mit austauschbaren Batterien ausschließlich Ersatzbatterien desselben Typs und Herstellers bzw. einen entsprechenden, vom Hersteller gemäß den Anweisungen im Service-Handbuch des Produkts empfohlenen Batterietyp. Versuchen Sie nicht, die Batterien auszubauen oder außerhalb des Systems wiederaufzuladen. Werfen Sie die Batterien nicht ins Feuer. Entsorgen Sie die Batterien entsprechend den Anweisungen des Herstellers und den vor Ort geltenden Vorschriften. CPU-Karten von Sun verfügen über eine Echtzeituhr mit integrierter Lithiumbatterie. Diese Batterie darf nur von einem qualifizierten Servicetechniker ausgetauscht werden.

Gehäuseabdeckung

Sie müssen die Abdeckung Ihres Sun-Computersystems entfernen, um Karten, Speicher oder interne Speichergeräte hinzuzufügen. Bringen Sie vor dem Einschalten des Systems die Gehäuseabdeckung wieder an.



Achtung – Nehmen Sie Sun-Geräte nicht ohne Abdeckung in Betrieb. Die Nichtbeachtung dieses Warnhinweises kann Verletzungen oder Geräteschaden zur Folge haben.

Warnungen bezüglich in Racks eingebauter Systeme

Die folgenden Warnungen gelten für Racks und in Racks eingebaute Systeme:



Achtung – Aus Sicherheitsgründen sollten sämtliche Geräte von unten nach oben in Racks eingebaut werden. Installieren Sie also zuerst die Geräte, die an der untersten Position im Rack eingebaut werden, gefolgt von den Systemen, die an nächsthöherer Stelle eingebaut werden, usw.



Achtung – Verwenden Sie beim Einbau den Kippschutz am Rack, um ein Umkippen zu vermeiden.



Achtung – Um extreme Betriebstemperaturen im Rack zu vermeiden, stellen Sie sicher, dass die Maximaltemperatur die Nennleistung der Umgebungstemperatur für das Produkt nicht überschreitet



Achtung – Um extreme Betriebstemperaturen durch verringerte Luftzirkulation zu vermeiden, sollte die für den sicheren Betrieb des Geräts erforderliche Luftzirkulation eingesetzt werden.

Hinweis zur Laser-Konformität

Sun-Produkte, die die Laser-Technologie verwenden, entsprechen den Laser-Anforderungen der Klasse 1.

Class 1 Laser Product
Luokan 1 Laserlaite
Klasse 1 Laser Apparat
Laser Klasse 1

CD- und DVD-Geräte

Die folgende Warnung gilt für CD-, DVD- und andere optische Geräte:



Achtung – Die hier nicht aufgeführte Verwendung von Steuerelementen, Anpassungen oder Ausführung von Vorgängen kann eine gefährliche Strahlenbelastung verursachen.

Normativas de seguridad

Lea esta sección antes de realizar cualquier operación. En ella se explican las medidas de seguridad que debe tomar al instalar un producto de Sun Microsystems.

Medidas de seguridad

Para su protección, tome las medidas de seguridad siguientes durante la instalación del equipo:

- Siga todos los avisos e instrucciones indicados en el equipo.
- Asegúrese de que el voltaje y frecuencia de la fuente de alimentación coincidan con el voltaje y frecuencia indicados en la etiqueta de clasificación eléctrica del equipo.
- No introduzca objetos de ningún tipo por las rejillas del equipo, ya que puede quedar expuesto a voltajes peligrosos. Los objetos conductores extraños pueden producir cortocircuitos y, en consecuencia, incendios, descargas eléctricas o daños en el equipo.

Símbolos

En este documento aparecen los siguientes símbolos:



Precaución – Existe el riesgo de que se produzcan lesiones personales y daños en el equipo. Siga las instrucciones.



Precaución – Superficie caliente. Evite todo contacto. Las superficies están calientes y pueden causar lesiones personales si se tocan.



Precaución – Voltaje peligroso. Para reducir el riesgo de descargas eléctricas y lesiones personales, siga las instrucciones.

En función del tipo de interruptor de alimentación del que disponga el dispositivo, se utilizará uno de los símbolos siguientes:



Encendido – Suministra alimentación de CA al sistema.



Apagado – Corta la alimentación de CA del sistema.



Espera – El interruptor de encendido/espera está en la posición de espera.

Modificaciones en el equipo

No realice modificaciones de tipo mecánico ni eléctrico en el equipo. Sun Microsystems no se hace responsable del cumplimiento de normativas en caso de que un producto Sun se haya modificado.

Colocación de un producto Sun



Precaución – No obstruya ni tape las rejillas del producto Sun. Nunca coloque un producto Sun cerca de radiadores ni fuentes de calor. Si no sigue estas indicaciones, el producto Sun podría sobrecalentarse y la fiabilidad de su funcionamiento se vería afectada.

Nivel de ruido

Producto: Sun StorageTek 8 Gb FC PCI-Express HBA, Emulex

En conformidad con la norma ISO 7779, el nivel de emisión de ruido de este producto en el puesto de trabajo es inferior a los 70 db(A).

En conformidad con la norma ISO 7779, el nivel de emisión de ruido de este producto en el puesto de trabajo es de XX db(A).

Cumplimiento de la normativa para instalaciones SELV

Las condiciones de seguridad de las conexiones de entrada y salida cumplen los requisitos para instalaciones SELV (del inglés *Safe Extra Low Voltage*, voltaje bajo y seguro).

Conexión del cable de alimentación



Precaución – Los productos Sun se han diseñado para funcionar con sistemas de alimentación que cuenten con un conductor neutro a tierra (con conexión a tierra de regreso para los productos con alimentación de CC). Para reducir el riesgo de descargas eléctricas, no conecte ningún producto Sun a otro tipo de sistema de alimentación. Póngase en contacto con el encargado de las instalaciones de su empresa o con un electricista cualificado en caso de que no esté seguro del tipo de alimentación del que se dispone en el edificio.



Precaución – No todos los cables de alimentación tienen la misma clasificación eléctrica. Los alargadores de uso doméstico no cuentan con protección frente a sobrecargas y no están diseñados para su utilización con sistemas informáticos. No utilice alargadores de uso doméstico con el producto Sun.

La siguiente medida solamente se aplica a aquellos dispositivos que dispongan de un interruptor de alimentación de espera:



Precaución – El interruptor de alimentación de este producto funciona solamente como un dispositivo de espera. El cable de alimentación hace las veces de dispositivo de desconexión principal del sistema. Asegúrese de que conecta el cable de alimentación a una toma

de tierra situada cerca del sistema y de fácil acceso. No conecte el cable de alimentación si la unidad de alimentación no se encuentra en el bastidor del sistema.

La siguiente medida solamente se aplica a aquellos dispositivos que dispongan de varios cables de alimentación:



Precaución – En los productos que cuentan con varios cables de alimentación, debe desconectar todos los cables de alimentación para cortar por completo la alimentación eléctrica del sistema.

Advertencia sobre las baterías



Precaución – Si las baterías no se manipulan o reemplazan correctamente, se corre el riesgo de que estallen. En los sistemas que cuentan con baterías reemplazables, reemplácelas sólo con baterías del mismo fabricante y el mismo tipo, o un tipo equivalente recomendado por el fabricante, de acuerdo con las instrucciones descritas en el manual de servicio del producto. No desmonte las baterías ni intente recargarlas fuera del sistema. No intente deshacerse de las baterías echándolas al fuego. Deshágase de las baterías correctamente de acuerdo con las instrucciones del fabricante y las normas locales. Tenga en cuenta que en las placas CPU de Sun, hay una batería de litio incorporada en el reloj en tiempo real. Los usuarios no deben reemplazar este tipo de baterías.

Cubierta de la unidad del sistema

Debe extraer la cubierta de la unidad del sistema informático Sun para instalar tarjetas, memoria o dispositivos de almacenamiento internos. Vuelva a colocar la cubierta antes de encender el sistema informático.



Precaución – No ponga en funcionamiento los productos Sun que no tengan colocada la cubierta. De lo contrario, puede sufrir lesiones personales y ocasionar daños en el sistema.

Advertencia sobre el sistema en bastidor

Las advertencias siguientes se aplican a los sistemas montados en bastidor y a los propios bastidores.



Precaución – Por seguridad, siempre deben montarse los equipos de abajo arriba. A saber, primero debe instalarse el equipo que se situará en el bastidor inferior; a continuación, el que se situará en el siguiente nivel, etc.



Precaución – Para evitar que el bastidor se vuelque durante la instalación del equipo, debe extenderse la barra antivolcado del bastidor.



Precaución – Para evitar que se alcance una temperatura de funcionamiento extrema en el bastidor, asegúrese de que la temperatura máxima no sea superior a la temperatura ambiente establecida como adecuada para el producto.



Precaución – Para evitar que se alcance una temperatura de funcionamiento extrema debido a una circulación de aire reducida, debe considerarse la magnitud de la circulación de aire requerida para que el equipo funcione de forma segura.

Aviso de cumplimiento de la normativa para la utilización de láser

Los productos Sun que utilizan tecnología láser cumplen los requisitos establecidos para los productos láser de clase 1.

Class 1 Laser Product
Luokan 1 Laserlaitte
Klasse 1 Laser Apparat
Laser Klasse 1

Dispositivos de CD y DVD

La siguiente medida se aplica a los dispositivos de CD y DVD, así como a otros dispositivos ópticos:



Precaución – La utilización de controles, ajustes o procedimientos distintos a los aquí especificados puede dar lugar a niveles de radiación peligrosos.

Nordic Lithium Battery Cautions

Norge



Advarsel – Litiumbatteri — Eksplosjonsfare. Ved utskifting benyttes kun batteri som anbefalt av apparatfabrikanten. Brukt batteri returneres apparatleverandøren.

Sverige



Varning – Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.

Danmark



Advarsel! – Litiumbatteri — Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.

Suomi



Varoitus – Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

Nordic Power Distribution Cautions

English



Caution – This product is also designed for an IT power distribution system with phase-to-phase voltage of 230V.

Danmark



Advarsel! – Dette produkt er også beregnet til et IT-strømfordelingssystem med en fase-til-fase spænding på 230 V.

Nordic Grounded Socket Cautions

English



Caution – The appliance must be connected to a grounded socket.

Norge



Advarsel – Apparatet må tilkoples jordet stikkontakt.

Sverige



Varning – Apparaten skall anslutas till jordat uttag.

Suomi



Varoitus – Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

Preface

This installation guide describes how to install and remove the single and dual port Sun StorageTek™ 8 Gigabit (Gb) Fibre Channel (FC) PCI-Express module host bus adapter (HBA). It also explains how to install the driver and any other utilities required by the HBA. The document is written for technicians, system administrators, application service providers (ASPs), and users who have advanced experience troubleshooting and replacing hardware.

Before You Read This Book

Before you install and use the HBA as described in this document, read and understand the following documents.

- *SunVTS 6.X Users Guide*
- *SunVTS 6.X Reference Manual*

You can find these documents by performing a search at <http://docs.sun.com>.

How This Book Is Organized

[Chapter 1](#) provides an overview of the product and lists the various operating systems, host platforms, switches, and storage systems, that support the HBA.

[Chapter 2](#) describes how to install and remove the HBA.

[Chapter 3](#) describes how to install any software and utilities that are required by the HBA.

Chapter 4 contains known issues with the HBA.

Using UNIX Commands

This document might not contain information about basic UNIX® commands and procedures such as shutting down the system, booting the system, and configuring devices. Refer to the following for this information:

- Software documentation that you received with your system
- Solaris™ Operating System documentation, which is at:

<http://docs.sun.com>

Shell Prompts

Shell	Prompt
C shell	<i>machine-name%</i>
C shell superuser	<i>machine-name#</i>
Bourne shell and Korn shell	\$
Bourne shell and Korn shell superuser	#

Typographic Conventions

Typeface	Meaning	Examples
AaBbCc123	The names of commands, files, and directories; on-screen computer output.	Edit your <code>.login</code> file. Use <code>ls -a</code> to list all files. % You have mail.
AaBbCc123	What you type, when contrasted with on-screen computer output.	% su password:
<i>AaBbCc123</i>	Book titles, new words or terms, words to be emphasized. Replace command-line variables with real names or values.	Read Chapter 6 in the <i>User's Guide</i> . These are called <i>class</i> options. You <i>must</i> be superuser to do this. To delete a file, type <code>rm filename</code> .

Note – Characters display differently depending on browser settings. If characters do not display correctly, change the character encoding in your browser to Unicode UTF-8.

Documentation, Support, and Training

Sun Function	URL
Documentation	http://www.sun.com/documentation/
Support	http://www.sun.com/support/
Training	http://www.sun.com/training/

Third-Party Web Sites

Sun is not responsible for the availability of third-party web sites mentioned in this document. Sun does not endorse and is not responsible or liable for any content, advertising, products, or other materials that are available on or through such sites or resources. Sun will not be responsible or liable for any actual or alleged damage or loss caused by or in connection with the use of or reliance on any such content, goods, or services that are available on or through such sites or resources.

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<http://www.sun.com/hwdocs/feedback>

Please include the title and part number of your document with your feedback:

Sun StorageTek™ 8 Gb FC PCI-Express HBA, Emulex Installation Guide, part number 820-5465-12

HBA Overview

This chapter provides a basic overview of the single and dual port Sun StorageTek™ 8 Gb Fibre Channel (FC) PCI-Express host bus adapter (HBA), Emulex (referred to as Sun StorageTek 8 Gb FC PCI-Express HBA in this document), which uses Emulex technology. This chapter also describes the various operating systems, host platforms, storage, and infrastructure configurations that support the HBA and lists the HBA environmental requirements.

This chapter contains the following topics:

- [“Kit Contents” on page 1](#)
- [“HBA Features and Specifications” on page 2](#)
- [“System Interoperability” on page 4](#)
- [“Operating System and Technology Requirements” on page 3](#)
- [“System Interoperability” on page 4](#)
- [“Environmental Requirements” on page 7](#)

Kit Contents

- Sun StorageTek 8 Gb FC PCI-Express HBA, Emulex
- Extra PCI full-size bracket
- *Accessing Documentation* document (part number: 820-2299-xx)
- P002403-05A China RoHS Material disclosure

HBA Features and Specifications

The Sun StorageTek 8 Gb FC PCI-Express HBA, Emulex (single port: SG-XPCIE1FC-EM8-Z, dual port: SG-XPCIE2FC-EM8-Z) consists of a single-wide, FC bus expansion board. The board interfaces a four- or eight-lane PCI-Express bus, with the four or eight lanes supporting one or two Fibre Channel (FC) optical media ports. Each independent FC port operates at 8 Gbit/sec and features 8/4/2 autonegotiation.

See [TABLE 1-1](#) for a list of the HBA features.

TABLE 1-1 HBA Features and Specifications

Feature	Description
PCI connector	x8
PCI signaling environment	PCI Express x8 (8 active lanes)
PCI lane usage	x8 lanes
PCI transfer rate (maximum)	PCI Express Generation One (GT/s) x8 PCI Express Generation Two (5.0 GT/s) x8
Number of FC ports	One (single port) or Two (dual port)
Number of devices supported	126 devices per FC loop; 510 devices in Fabric mode
FC bus type (external)	Fiber-optic media, short-wave, multi-mode fiber (400-M5- SN-S)
FC transfer rate	400 MBps per port maximum, half-duplex 800 MBps per port maximum, full-duplex
FC topologies	Switched fabric (N-Port), arbitrated loop (NL-Port), and point-to-point (N-Port)
RAM	1.5 MB, parity protected, per port
BIOS ROM (FC)	One 4-MB (dual-port) or 2-MB (single-port) flash ROM
NVRAM	One 2-KB EEPROM per port
External connectors	One Small-Form Factor Pluggable (SFP) multimode optic with LC-style connectors per port

TABLE 1-1 HBA Features and Specifications

Feature (Continued)	Description (Continued)
Maximum FC cable length	2 Gb/s: 500 meters using 50/125 µm core OM3 fiber 300 meters using 50/125 µm core OM2 fiber 150 meters using 62.5/125 µm core OM1 fiber 4 Gb/s: 380 meters using 50/125 µm core OM3 fiber 150 meters using 50/125 µm core OM2 fiber 70 meters using 62.5/125 µm core OM1 fiber 8 Gb/s: 150 meters using 50/125 µm core OM3 fiber 50 meters using 50/125 µm core OM2 fiber 21 meters using 62.5/125 µm core OM1 fiber
LED indicators	Two LEDs per port (yellow and green) on the front panel as status indicators.
Maximum power consumption	13.3W (dual port), 10.1W (signal port)
Form Factor	Low-profile MD2 form factor

Operating System and Technology Requirements

The HBA requires the OS and technology levels listed in [TABLE 1-2](#).

TABLE 1-2 Supported Operating System/Technology Versions

Operating System/Technology	Supported Versions
Solaris 10 OS for the x64 and x86 (32-bit and 64-bit) platforms (Supports MPXIO)	<ul style="list-style-type: none"> • Solaris 10 8/07 (all updates)
Solaris 10 OS for the SPARC (64-bit) platform (Supports MPXIO)	<ul style="list-style-type: none"> • Solaris 10 (all updates)
Linux OS	<ul style="list-style-type: none"> • Red Hat Enterprise Linux 4.6 (32-bit and 64-bit), U5 • Red Hat Enterprise Linux 5.1 (32-bit and 64-bit), U1 • SUSE Linux Enterprise Server 9 (32-bit and 64-bit), SP4 • SUSE Linux Enterprise Server 10 (32-bit and 64-bit), SP1

TABLE 1-2 Supported Operating System/Technology Versions *(Continued)*

Operating System/Technology	Supported Versions
Microsoft Windows OS Enterprise and Standard Editions WHQL Certified, MS Windows MPIO	<ul style="list-style-type: none"> • Windows Server 2003 SP1 32-bit, x64 • Windows Server 2003 SP2 32-bit, x64 • Windows Server 2003 SP1/R2 32-bit, x64 • Windows Server 2003 SP2/R2 32-bit, x64
Microsoft Windows OS Enterprise and Standard Editions WHQL Certified, MS Windows MPIO	<ul style="list-style-type: none"> • Windows Server 2008 32-bit, x64
VMware Technology	<ul style="list-style-type: none"> • ESX Server 3.5 u2

System Interoperability

This section provides information about selected platforms and storage that are compatible with the heterogeneous FC network design of the HBA. This section contains the following topics:

- [“Host Platform Support” on page 4](#)
- [“Storage Support” on page 5](#)
- [“Quantum S4 tape drive” on page 6](#)

Host Platform Support

The HBA is supported by the platforms listed in [TABLE 1-3](#).

TABLE 1-3 Platform Support

Platform	Supported OS/Technology
Sun SPARC Servers	
Sun SPARC Enterprise T2000	Solaris
Sun SPARC Enterprise T5120	Solaris
Sun SPARC Enterprise T5140	Solaris
Sun SPARC Enterprise T5220	Solaris
Sun SPARC Enterprise T5240	Solaris
Sun SPARC Enterprise T5440	Solaris

TABLE 1-3 Platform Support (*Continued*)

Platform (<i>Continued</i>)	Supported OS/Technology (<i>Continued</i>)
Sun SPARC Enterprise M4000	Solaris
Sun SPARC Enterprise M5000	Solaris
Sun SPARC Enterprise M8000	Solaris
Sun SPARC Enterprise M9000-32	Solaris
Sun SPARC Enterprise M9000-64	Solaris
Sun Fire™ V445	Solaris
Sun Fire V245	Solaris
Sun Ultra U45	Solaris
Sun x64 AMD Servers	
Sun Fire X4100M2	Solaris, Windows, Linux, VMware
Sun Fire X4200M2	Solaris, Windows, Linux, VMware
Sun Fire X4600	Solaris, Windows, Linux, VMware
Sun Fire X4600M2	Solaris, Windows, Linux, VMware
Sun Fire X4440	Solaris, Windows, Linux, VMware
Sun Fire X4240	Solaris, Windows, Linux, VMware
Sun Fire X4140	Solaris, Windows, Linux, VMware
Sun Fire X2100M2	Solaris, Windows, Linux, VMware
Sun Fire X2200M2	Solaris, Windows, Linux, VMware
Sun x64 Intel Servers	
Sun Fire X4150	Solaris, Windows, Linux, VMware
Sun Fire X4450	Solaris, Windows, Linux, VMware

The host system must have at least one PCI-Express 8-lane slot to support the HBA.

Storage Support

This section lists the arrays and tape storage supported by the HBA. This section contains the following topics:

- [“Array Support” on page 6](#)
- [“System Support” on page 6](#)
- [“Tape Storage Support” on page 6](#)
- [“Quantum S4 tape drive” on page 6](#)

Array Support

The HBA is supported by the following arrays:

- Sun StorageTek 2540
- Sun StorageTek 6140
- Sun StorageTek 6540

System Support

The HBA is supported by the following systems:

- Sun StorageTek 9990
- Sun StorageTek 9980/9985
- Sun StorageTek 9970

Tape Storage Support

The HBA is supported by the following tape storage:

- Sun StorageTek SL48 tape library
- Sun StorageTek SL24 tape autoloader
- Sun StorageTek SL500 modular library
- Sun StorageTek SL1400 tape library
- Sun StorageTek SL3000 tape library
- Sun StorageTek L8500 modular library
- Sun StorageTek Virtual Tape Library (VTL): VTL Value and VTL Plus
- Sun StorageTek T10000A and T10000B
- Sun StorageTek T9840C, and T9840D tape drives
- Sun StorageTek T9940B tape drive
- IBM and HP LT03 tape drives
- IBM and HP LT04 tape drives
- Quantum S4 tape drive

Switch Support

The HBA is supported with the following Fibre Channel switches:

- Brocade DCX backbone switch

- Brocade 200E switch
- Brocade 300 switch
- Brocade SW4100 switch
- Brocade SW4900 switch
- Brocade SW5000 switch
- Brocade SW5100 switch
- Brocade SW5300 switch
- Brocade SW7500 switch
- Cisco MDS9124 24-port multilayer fabric switch
- Cisco MDS 9134 multilayer fabric switch
- Cisco MDS 9140 multilayer fabric switch
- Cisco MDS 9216A multilayer fabric switch
- Cisco MDS 9216i multilayer fabric switch
- Cisco MDS 9222i multiservice modular switch
- Cisco MDS 9509 multilayer director
- Cisco MDS 9513 multilayer director
- McData Mi10K director
- McData 6140 director
- QLogic 9000
- QLogic 5800

The HBA is supported by all 1-Gb Ethernet switches.

Environmental Requirements

The HBA environmental requirements are listed in [TABLE 1-4](#).

TABLE 1-4 HBA Environmental Requirements

Specification	Operating	Non-Operating
Temperature	0° to 55°C, non-condensing	-40°C to 70°C, non-condensing
Airflow	150 lfm	n/a
Humidity	10% to 90% RH, non-condensing, 27°C max wet bulb	93% RH, nonconducting, 38°C max wet bulb

TABLE 1-4 HBA Environmental Requirements

Specification	Operating	Non-Operating
Altitude	3200m	12,200m
Vibration	0.20G in all axes swept for 5-500 Hz sine	1.0G in all axes 5-500-5 Hz sine
Shock	5G, 11 ms half-sine	30G, 11 ms half-sine

Hardware Installation and Removal

This chapter describes the tasks required to install and remove the HBA. Refer to your system installation or service manual for detailed instructions.

This chapter contains the following topics:

- [“Observing ESD and Handling Precautions” on page 9](#)
- [“Installing the Hardware” on page 10](#)
- [“Testing the Installation” on page 17](#)
- [“Replacing the SFP+ Unit on the HBA” on page 24](#)
- [“Removing the Hardware” on page 24](#)

Observing ESD and Handling Precautions



Caution – Damage to the HBA can occur as the result of careless handling or electrostatic discharge (ESD). Always handle the HBA with care to avoid damage to electrostatic sensitive components.

To minimize the possibility of ESD-related damage, use both a workstation antistatic mat and an ESD wrist strap. You can get an ESD wrist strap from any reputable electronics store or from Sun as part number #250-1007. Observe the following precautions to avoid ESD-related problems:

- Leave the HBA in its antistatic bag until you are ready to install it in the system.
- Always use a properly fitted and grounded wrist strap or other suitable ESD protection when handling the HBA, and observe proper ESD grounding techniques.

- Hold the HBA by the edge of the PCB, not by the connectors.
- Place the HBA on a properly grounded antistatic work surface pad when it is out of its protective antistatic bag.

Installing the Hardware

The hardware installation process involves the following general steps, as described in these sections:

- [“To Install the HBA” on page 10](#)
- [“To Connect the Optical Cable” on page 14](#)
- [“To Apply Power” on page 15](#)
- [“To Verify Proper Installation \(for the Solaris OS\)” on page 17](#)
- [“To Verify Attached Storage \(for the Solaris OS\)” on page 21](#)

▼ To Install the HBA

The HBA comes with a low-profile PCIe bracket installed. A standard bracket is included in the box with the HBA. The low-profile mounting bracket is shorter than the standard bracket; approximately 3.11 in. (7.9 cm) compared to 4.75 in. (12.06 cm). If you need to change the bracket for HBA installation, you must first remove the optical transceiver (two transceivers on the two-port adapter) from its housing. This procedure covers how to install the HBA and, if necessary, how to remove the transceiver and change the bracket safely.

The HBA uses different types of transceivers. This procedure shows an example of one type.

1. **Attach an antistatic strap** (refer to [“Observing ESD and Handling Precautions” on page 9](#)).
2. **Refer to your system installation or service manual to determine an appropriate PCI-Express slot in which to install the HBA.**
3. **Shut down, power off, and unplug the system.**
4. **Remove the system case.**
5. **Remove the blank panel from an empty PCI-Express slot.**
6. **(Optional) Perform the following steps to replace the PCI bracket.**

- a. Remove the transceiver from its cage assembly (see [FIGURE 2-2](#)) by pulling the bail (handle) out and down to release the latch and gently pull the transceiver out of its housing.

Do not force it. After the latch is released, the transceiver slides out easily..

Caution – This is a delicate operation—take care not to damage the transceiver.

FIGURE 2-1 Optical Transceiver

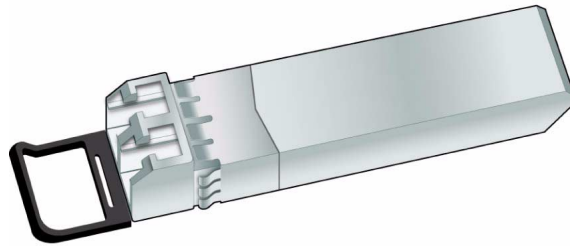
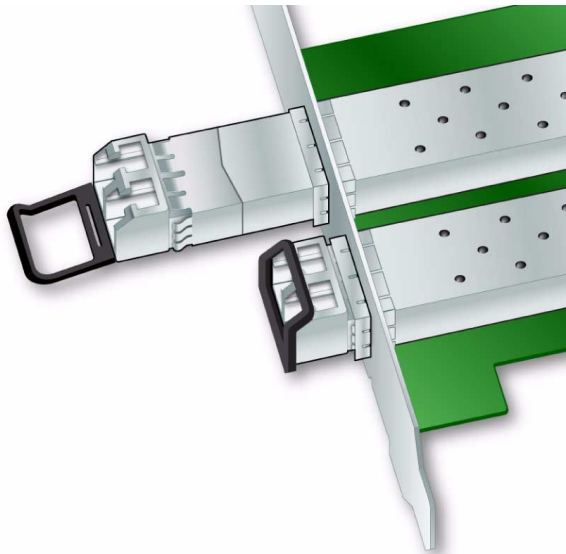
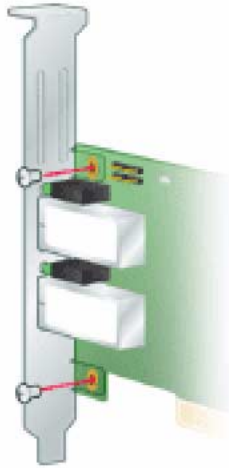


FIGURE 2-2 A Partly Extracted Optical Transceiver and an Optical Transceiver That is Latched In Place



- b. Observing ESD precautions, store the transceiver in an ESD-safe place.
- c. Remove the mounting bracket screws from the top of the HBA.

FIGURE 2-3 Removing the Bracket Mounting Screws



- d. Remove the bracket and store it for future use.
- e. Align the new mounting bracket tabs with the holes in the HBA.

Caution – Be careful not to push the bracket past the transceiver housing's grounding tabs.

Make sure the LEDs are properly aligned with the holes in the bracket.

- f. Re-install the screws that attach the HBA to the bracket.
 - g. Re-install the transceiver by sliding it into the housing.
When the latch engages, it clicks.
 - h. Push the bail back into place.
7. Insert the HBA into the empty PCI-Express 8-lane slot and press firmly until the adapter is seated.
 8. Secure the mounting bracket of the HBA to the case with the panel screw or clip.

9. Replace the computer case and tighten the case screws.

The HBA is now installed in the computer and is ready for media attachment.

▼ To Connect the Optical Cable

Note – The HBA does not allow normal data transmission on an optical link unless it is connected to another similar or compatible Fibre Channel product (that is, multimode to multimode).

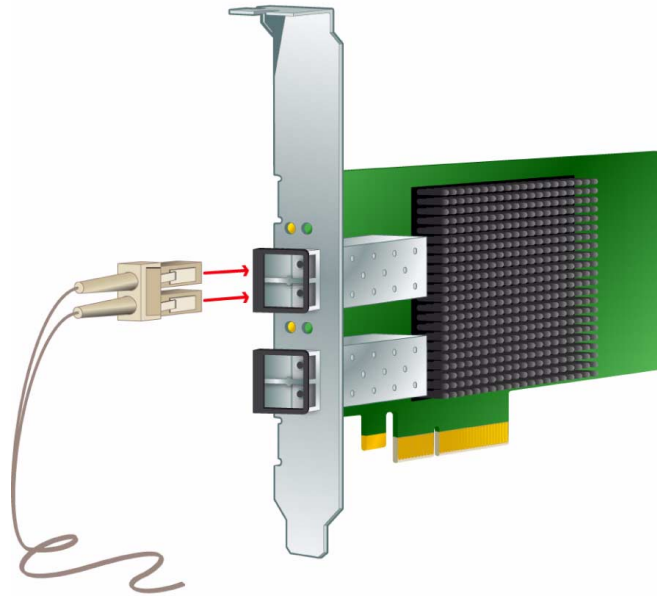
Use multimode fiber-optic cable, intended for short-wave lasers, that adheres to the specifications in [TABLE 2-1](#).

TABLE 2-1 Optical Cable Specifications

Fiber-Optic Cable	Maximum Length	Minimum Length	Connector
OM3 - Multimode 50/125 micron fiber (2000 MHz*km bandwidth cable)	2.125 Gb/s: 0.5m - 500m	.5 meters	LC
	4.25 Gb/s: 0.5m - 380m		
	8.5 Gb/s 0.5m - 150m		
OM2 - Multimode 50/125 micron fiber (500 MHz*km bandwidth cable)	2.125 Gb/s: 0.5m - 300m	.5 meters	LC
	4.25 Gb/s: 0.5m - 150m		
	8.5 Gb/s 0.5m - 50m		
OM1 - Multimode 62.5/125 micron fiber (200 MHz*km bandwidth cable)	2.125 Gb/s: 0.5m - 150m	.5 meters	LC
	4.25 Gb/s: 0.5m - 70m		
	8.5 Gb/s 0.5m - 21m		

1. Connect the fiber-optic cable to an LC connector on the HBA (see [FIGURE 2-4](#)).

FIGURE 2-4 Attaching the Optical Cable



2. **Connect the other end of the cable to the FC device.**

After the optical cable is connected to the HBA, you can power on the system.

▼ To Apply Power

1. **Verify that the HBA is securely installed in the system.**
2. **Verify that the correct fiber-optic cable is attached.**
3. **Refer to your system installation or service manual to determine how to power on the system.**

▼ (LED) Status

Yellow and green LEDs can be seen through openings in the mounting bracket of the HBA. Each port has a corresponding set of yellow and green LEDs (see [FIGURE 2-5](#)).

FIGURE 2-5 LEDs

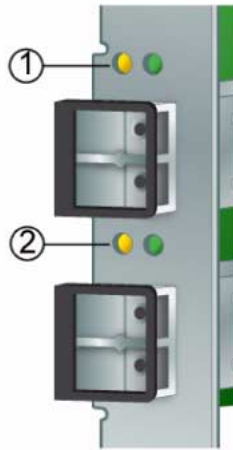


Figure Legend

-
- 1 Port 0 LEDs
 - 2 Port 1 LEDs
-

4. Observe the light-emitting diode (LED) status for the power-on self test (POST) results as shown in [TABLE 2-2](#).

TABLE 2-2 LED Status

Green LED	Yellow LED	State
Off	Off	Wake-Up Failure (Dead Board)
Off	On	POST failure (Dead Board)
Off	Slow Blink	Wake-Up Failure Monitor
Off	Fast Blink	Failure in POST
Off	Flashing	POST Processing in Progress
On	Off	Failure While Functioning
On	On	Failure While Functioning
On	2 Fast Blinks	2 Gb Link Rate – Normal, Link up
On	3 Fast Blinks	4 Gb Link Rate – Normal, Link up
On	4 Fast Blinks	8 Gb Link Rate – Normal, Link up

TABLE 2-2 LED Status (*Continued*)

Green LED	Yellow LED	State
Slow Blink	Off	Normal – Link Down or not started
Slow Blink	On	Not Defined
Slow Blink	Slow Blink	Off-line for Download
Slow Blink	Fast Blink	Restricted Off-line Mode (Waiting for Restart)
Slow Blink	Flashing	Restricted Off-line Mode, Test Active
Fast blink	Off	Debug Monitor in Restricted Mode
Fast blink	On	Not Defined

Testing the Installation

This section contains the following topics:

- [“To Verify Proper Installation \(for the Solaris OS\)” on page 17](#)
- [“To Verify Attached Storage \(for the Solaris OS\)” on page 21](#)

▼ To Verify Proper Installation (for the Solaris OS)

1. Use the `show-devs` command at the `ok` prompt to list the installed devices.

The HBA can be identified in the output by looking for the `SUNW,emlxs@n` and `SUNW,emlxs@n,1` node names, where `n` is usually a single-digit number from 0 to 9. In this example, there are two dual port (SG-XPCIE2FC-EM8-Z) and one single port (SG-XPCIE1FC-EM8-Z) HBAs installed.

```
{0} ok show-devs
/pci@7c0/pci@0
/pci@7c0/pci@0/pci@9
/pci@7c0/pci@0/pci@8
/pci@7c0/pci@0/pci@2
/pci@7c0/pci@0/pci@2
/pci@7c0/pci@0/pci@1
/pci@7c0/pci@0/pci@9/SUNW,emlxs@0,1
/pci@7c0/pci@0/pci@9/SUNW,emlxs@0
/pci@7c0/pci@0/pci@9/SUNW,emlxs@0,1/fp@0,0
```

(continued)

```
/pci@7c0/pci@0/pci@9/SUNW,emlxs@0,1/fp@0,0/disk
/pci@7c0/pci@0/pci@9/SUNW,emlxs@0/fp@0,0
/pci@7c0/pci@0/pci@9/SUNW,emlxs@0/fp@0,0/disk
/pci@7c0/pci@0/pci@8/SUNW,emlxs@0
/pci@7c0/pci@0/pci@8/SUNW,emlxs@0/fp@0,0
/pci@7c0/pci@0/pci@8/SUNW,emlxs@0/fp@0,0/tape/pci@7c0/pci@0/pci@8
/SUNW,emlxs@0/fp@0,0/disk
/pci@7c0/pci@0/pci@2/network@0,1
/pci@7c0/pci@0/pci@2/network@0
/pci@7c0/pci@0/pci@1/pci@0,2
/pci@7c0/pci@0/pci@1/pci@0
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@2,1
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@2
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1,1
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@2,1/fp@0,0
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@2,1/fp@0,0/disk
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@2/fp@0,0
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@2/fp@0,0/disk
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1,1/fp@0,0
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1,1/fp@0,0/tape
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1,1/fp@0,0/disk
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1/fp@0,0
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1/fp@0,0/tape
/pci@7c0/pci@0/pci@1/pci@0,2/SUNW,emlxs@1/fp@0,0/disk
/pci@7c0/pci@0/pci@1/pci@0/ide@8
/pci@7c0/pci@0/pci@1/pci@0/usb@6
/pci@7c0/pci@0/pci@1/pci@0/usb@5
/pci@7c0/pci@0/pci@1/pci@0/isa@2
/pci@7c0/pci@0/pci@1/pci@0/ide@8/cdrom
/pci@7c0/pci@0/pci@1/pci@0/ide@8/disk
/pci@7c0/pci@0/pci@1/pci@0/usb@6/hub@1
/pci@7c0/pci@0/pci@1/pci@0/isa@2/serial@0,3f8
/pci@780/pci@0
/pci@780/pci@0/pci@9
/pci@780/pci@0/pci@8
/pci@780/pci@0/pci@2
/pci@780/pci@0/pci@1
/pci@780/pci@0/pci@9/scsi@0
```

```
(continued)
/pci@780/pci@0/pci@9/scsi@0/disk
/pci@780/pci@0/pci@9/scsi@0/tape
/pci@780/pci@0/pci@8/SUNW,emlxs@0,1
/pci@780/pci@0/pci@8/SUNW,emlxs@0
/pci@780/pci@0/pci@8/SUNW,emlxs@0,1/fp@0,0
/pci@780/pci@0/pci@8/SUNW,emlxs@0,1/fp@0,0/tape
/pci@780/pci@0/pci@8/SUNW,emlxs@0,1/fp@0,0/disk
/pci@780/pci@0/pci@8/SUNW,emlxs@0/fp@0,0
/pci@780/pci@0/pci@8/SUNW,emlxs@0/fp@0,0/tape
/pci@780/pci@0/pci@8/SUNW,emlxs@0/fp@0,0/disk
/pci@780/pci@0/pci@1/network@0,1
/pci@780/pci@0/pci@1/network@0
/packages/SUNW,builtin-drivers
{c} ok
```

2. To positively identify the port as a Sun StorageTek 8 Gb FC port, use the `cd` command to change to the `SUNW,emlxs@n` directories, and use the `.properties` command.

In this example, the `.properties` command output displays the properties of the two ports in a dual port HBA.

```
ok cd /pci@780/pci@0/pci@8/SUNW,emlxs@0
{c} ok .properties
assigned-addresses      82060010 00000000 00300000 00000000
00002000
                        82060018 00000000 00304000 00000000 00004000
                        81060020 00000000 00000000 00000000 00000100
                        82060030 00000000 00340000 00000000 00040000
port_wnn                10 00 00 00 c9 71 be fc
node_wnn                20 00 00 00 c9 71 be fc
alternate-reg           01060020 00000000 00000000 00000000 00000100
reg                     00060000 00000000 00000000 00000000 00000000
                        03060010 00000000 00000000 00000000 00001000
                        03060018 00000000 00000000 00000000 00000100
                        02060030 00000000 00000000 00000000 00020000
compatible              pciex10df,fc40.10df.fc42.3
                        pciex10df,fc40.10df.fc42
                        pciex10df,fc42
                        pciex10df,fc40.3
                        pciex10df,fc40
                        pciexclass,0c0400
                        pciexclass,0c04
clock-frequency         02625a00
#size-cells             00000000
#address-cells          00000002
copyright              Copyright (c) 2000-2007 Emulex
model                  LPe12002-S
name                   SUNW,emlxs
device_type            scsi-fcp
manufacturer          Emulex
fcode-version          3.01a1
fcode-rom-offset       0000c400
interrupts              00000001
class-code              000c0400
subsystem-id           0000fc42
subsystem-vendor-id    000010df
revision-id            00000003
device-id               0000fc40
vendor-id               000010df
{c} ok
```

```

assigned-addresses      82080110 00000000 03504000 00000000
00002000
                        82080118 00000000 03506000 00000000 00002000
                        81080120 00000000 00003100 00000000 00000100
                        82080130 00000000 03580000 00000000 00040000
port_wnn                10 00 00 00 c9 4b 3b 39
node_wnn                20 00 00 00 c9 4b 3b 39
alternate-reg           01080120 00000000 00000000 00000000 00000100
reg                     00080100 00000000 00000000 00000000 00000000
                        03080110 00000000 00000000 00000000 00001000
                        03080118 00000000 00000000 00000000 00000100
                        02080130 00000000 00000000 00000000 00020000
compatible              pci10df,fc20
clock-frequency         02625a00
#size-cells             00000000
#address-cells          00000002
copyright              Copyright (c) 2008 Emulex
model                  LPe12002-S
name                   SUNW,emlxs
device_type            scsi-fcp
manufacturer           Emulex
fcode-version          1.50a8
fcode-rom-offset       0000c000
devsel-speed           00000000
class-code             000c0400
interrupts             00000002
latency-timer          00000000
cache-line-size        00000010
max-latency            00000000
min-grant              00000000
subsystem-id           0000fc22
subsystem-vendor-id    000010df
revision-id            00000002
device-id              0000fc20
vendor-id              000010df
{0} ok

```

▼ To Verify Attached Storage (for the Solaris OS)

- If online storage is connected to the HBA, use the `apply show-children` command to list the attached storage.

Note – You might need to use the `reset-all` command before using the `apply show-children` command.

In the example that follows, four SANS with 14 to 16 drives each and an FC tape drive are attached to the two ports or a dual-port HBA.

```
{14} ok show-children
Device PortID 10600 WWPN 200600a0b8220346
  LUN 0 Disk SUN CSM100_R_FC 0612
  LUN 1 Disk SUN CSM100_R_FC 0612
  LUN 2 Disk SUN CSM100_R_FC 0612
  LUN 3 Disk SUN CSM100_R_FC 0612
  LUN 4 Disk SUN CSM100_R_FC 0612
  LUN 5 Disk SUN CSM100_R_FC 0612
  LUN 6 Disk SUN CSM100_R_FC 0612
  LUN 7 Disk SUN CSM100_R_FC 0612
  LUN 8 Disk SUN CSM100_R_FC 0612
  LUN 9 Disk SUN CSM100_R_FC 0612
  LUN a Disk SUN CSM100_R_FC 0612
  LUN b Disk SUN CSM100_R_FC 0612
  LUN c Disk SUN CSM100_R_FC 0612
  LUN d Disk SUN CSM100_R_FC 0612
Device PortID 10700 WWPN 50020f2300006cee
  LUN 0 Disk SUN T300 0301
  LUN 1 Disk SUN T300 0301
  LUN 2 Disk SUN T300 0301
  LUN 3 Disk SUN T300 0301
  LUN 4 Disk SUN T300 0301
  LUN 5 Disk SUN T300 0301
  LUN 6 Disk SUN T300 0301
  LUN 7 Disk SUN T300 0301
  LUN 8 Disk SUN T300 0301
  LUN 9 Disk SUN T300 0301
  LUN a Disk SUN T300 0301
  LUN b Disk SUN T300 0301
  LUN c Disk SUN T300 0301
  LUN d Disk SUN T300 0301
  LUN e Disk SUN T300 0301
  LUN f Disk SUN T300 0301
```

(continued)

Device	PortID	20600	WWPN	200600a0b8220345	
LUN	0	Disk	SUN	CSM100_R_FC	0612
LUN	1	Disk	SUN	CSM100_R_FC	0612
LUN	2	Disk	SUN	CSM100_R_FC	0612
LUN	3	Disk	SUN	CSM100_R_FC	0612
LUN	4	Disk	SUN	CSM100_R_FC	0612
LUN	5	Disk	SUN	CSM100_R_FC	0612
LUN	6	Disk	SUN	CSM100_R_FC	0612
LUN	7	Disk	SUN	CSM100_R_FC	0612
LUN	8	Disk	SUN	CSM100_R_FC	0612
LUN	9	Disk	SUN	CSM100_R_FC	0612
LUN	a	Disk	SUN	CSM100_R_FC	0612
LUN	b	Disk	SUN	CSM100_R_FC	0612
LUN	c	Disk	SUN	CSM100_R_FC	0612
LUN	d	Disk	SUN	CSM100_R_FC	0612
Device	PortID	20700	WWPN	50020f2300003206	
LUN	0	Disk	SUN	T300	0301
LUN	1	Disk	SUN	T300	0301
LUN	2	Disk	SUN	T300	0301
LUN	3	Disk	SUN	T300	0301
LUN	4	Disk	SUN	T300	0301
LUN	5	Disk	SUN	T300	0301
LUN	6	Disk	SUN	T300	0301
LUN	7	Disk	SUN	T300	0301
LUN	8	Disk	SUN	T300	0301
LUN	9	Disk	SUN	T300	0301
LUN	a	Disk	SUN	T300	0301
LUN	b	Disk	SUN	T300	0301
LUN	c	Disk	SUN	T300	0301
LUN	d	Disk	SUN	T300	0301
LUN	e	Disk	SUN	T300	0301
LUN	f	Disk	SUN	T300	0301
Device	PortID	20900	WWPN	500104f00047457b	
LUN	0	Removable Tape	STK	T9840B	1.34

{14} ok

Replacing the SFP+ Unit on the HBA

The Small Form Factor Pluggable (SFP+) optics unit on this card is considered a part of the card, NOT as a separate field replaceable unit (FRU). Therefore, in the event that the SFP+ unit malfunctions, you must return the entire card in order to receive a replacement SFP+ unit. Always return any malfunctioning card with the SFP+ unit attached. For information about removing the card from a system in order to return it, see [“To Remove the HBA Hardware” on page 24](#).

Removing the Hardware

The following procedures describe how to remove the HBA. Refer to your system installation or service manual for detailed HBA adapter removal instructions.

The hardware removal process involves these general steps:

1. **Halting the operating system and removing power from the server blade, or computer.**
2. **Removing the HBA hardware.**

▼ To Remove the HBA Hardware

1. **Use an ESD strap (refer to [“Observing ESD and Handling Precautions” on page 9](#)).**
2. **Refer to your system documentation to shut down, power off, and unplug the system.**
3. **Disconnect all cables.**
4. **Unscrew the case screws and remove the system case.**
5. **Remove the mounting bracket of the HBA from the system by unscrewing the panel screw or removing the clip, whichever is being used.**

You can now remove the HBA.

HBA Software Installation

After you have completed the hardware installation and powered on the system, follow the instructions in this chapter for your operating system to install the HBA driver and any other utilities that are required.

This chapter contains the following topics:

- “Driver Software for the Solaris OS” on page 25
- “Installing Software For the Red Hat and SUSE Linux OSes” on page 26
- “Installing Software For the Windows Server 2003 or Windows Server 2008 OS” on page 27
- “Configuration and Diagnostic Utilities” on page 28

Driver Software for the Solaris OS

The HBA driver for the Solaris OS is included with the Solaris 10 1/06 (s10u1) OS release. No additional patches or packages are required to support the HBA on minimum supported versions of the Solaris 10 OS for x64/x86 systems.

Solaris Diagnostic Support

Diagnostic support for the HBA is included in the SunVTS™ software beginning with version 6.3. The SunVTS software is included with the Solaris 10 11/06 (s10u3) OS release, and is also available for download at:

<http://www.sun.com/oem/products/vts>

The `emlxtest` utility, which is included in the SunVTS software, supports the following functions:

- Connectivity verification
 - Firmware version and checksum test
 - Self-test
 - Loopback tests
 - External
 - Internal, single-bit
 - Internal, 10-bit
 - Mailbox
-

Installing Software For the Red Hat and SUSE Linux OSes

No updates are required to support the HBA on minimum supported versions of Linux.

For diagnostic support, you might need to rebuild the Linux driver. Before rebuilding the drivers for Linux, you must have the required Linux OS installed on the hard disk. The driver and utilities are available for download at the Emulex support site for Sun Microsystems.

▼ To Install the HBA Software For the Linux OS

1. **Go to the Emulex support site for Sun Microsystems at:**
<http://www.emulex.com/sun/support/index.jsp>
2. **Locate the Sun StorageTek section, and click the model number (SG-XPCIE1FC-EM8-Z) for the HBA you want to install.**
3. **Locate the Linux Driver section, and click Download to copy the driver files to a local file system.**
4. **Click Download to copy the management utilities to a local file system.**
5. **Click Manual to copy the PDF manual, and then follow the installation and configuration procedures.**
6. **Click PDF Manual to download installation, configuration, and troubleshooting information.**

7. Install the driver for Linux as described in the Emulex Driver and Utilities for Linux User Manual.
8. Install the management utilities as described in the Emulex driver and utilities documentation.

▼ To Install the HBA Software For the VMware Technology

You must obtain the drivers from VMware.

1. Go to the Emulex support site for Sun Microsystems at:
<http://www.emulex.com/sun/support/index.jsp>
2. Locate the VMware section, and click the model number (SG-XPCIE1FC-EM8-Z) for the HBA you want to install.
3. Click Download to copy the management utilities to a local file system.
4. Click Manual to copy the PDF manual, and then follow the installation and configuration procedures.
5. Click PDF Manual to download installation, configuration, and troubleshooting information.
6. Obtain the driver from VMware and install the driver as described in the VMware documentation.
7. Install the management utilities as described in the Emulex driver and utilities documentation.

Installing Software For the Windows Server 2003 or Windows Server 2008 OS

The HBA driver and applications kits for the Windows Server 2003 or Windows Server 2008 OS is available for download at the Emulex support site for Sun Microsystems.

▼ To Install the Software For the Windows Server 2003 or Windows Server 2008 OS

1. Go to the Emulex support site for Sun Microsystems at:
<http://www.emulex.com/sun/support/index.jsp>
2. Locate the driver section for Windows.
3. Download the Driver Kit by clicking Download.
4. Click PDF Manual to download the installation guide for the Windows OS.
5. Install the driver and management utilities for the Windows OS as described in the installation guide.

Configuration and Diagnostic Utilities

Use the HBAnywhere utility or the `lputil` command-line interface (CLI) utility to configure the HBA. These utilities are available for Linux and Windows OSes and provide support for the following functions:

- Discover local and remote hosts, HBAs, targets, and LUNs
- Reset HBAs
- Set HBA driver parameters
- Update firmware
- Enable or disable the system BIOS
- Run diagnostic tests on HBAs
- Manage out-of-band HBAs
- Manage local and in-band remote HBAs

For more information about the HBAnywhere and `lputil` utilities, download their user manuals from the Emulex support site for Sun Microsystems.

Known Issues

This chapter contains any known issues with the HBA.

Reboot Fails on the SPARC Enterprise M8000 System (6728135)

On the SPARC Enterprise M8000 system, if you use the `stmsboot` command to provide dual paths to the boot device, on occasion the boot device is not found and the reboot does not succeed.

At the console, the following message will be printed:

```
Can't open boot device
```

Workaround: When this occurs, retry the boot operation. The system will now reboot as expected.

